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(54) Title: FUEL COMPOSITION (57) Abstract A fuel oil composition comprises a major proportion of a liquid hydrocarbon middle distillate fuel having a sulphur concentration of 0.2 % or less by weight based on the weight of the fuel, and a minor proportion of a wear-reducing additive comprising an ester for increasing the lubricity of the fuel.		

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Fuel Composition

This invention relates to fuel compositions useful, for example, to improve lubricity and reduce wear in diesel engines.

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The art describes esters as additives for diesel engine fuel. For example, US-A-2,527,889 describes polyhydroxy alcohol esters as primary anti-corrosion additives in diesel engine fuel, and GB-A-1,505,302 describes ester combinations including, for example, glycerol monoesters and glycerol diesters as diesel fuel additives, the combinations being described as leading to advantages including less wear of the fuel-injection equipment, piston rings and cylinder liners.

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GB-A-1,505,302 is, however, concerned with overcoming the operational disadvantages of corrosion and wear by acidic combustion products, residues in the combustion chamber and in the exhaust system. The document states that these disadvantages are due to incomplete combustion under certain operating conditions. Typical diesel fuels available at the date of the document contained, for example, from 0.5 to 1% by weight of sulphur, as elemental sulphur, based on the weight of the fuel.

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The sulphur content of diesel fuels has now been or will be lowered in a number of countries for environmental reasons, i.e. to reduce sulphur dioxide emissions. Thus, heating oil and diesel fuel sulphur content are being harmonised by the CEC at a maximum of 0.2% by weight, and, at a second stage, the maximum content in diesel fuel will be 0.05% by weight. Complete conversion to the 0.05% maximum may be required during 1996.

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The process for preparing low sulphur content fuels, in addition to reducing sulphur content, also reduces the content of other components of the fuel such as polyaromatic components and polar components. Reducing one or more of the sulphur, polyaromatic and polar component content of the fuel creates a new problem in use of the fuel, i.e. the ability of the fuel to lubricate the injection system of the engine is reduced such that, for example, the fuel injection pump of the engine can fail relatively early in the life of an engine, failure being, eg. In high pressure fuel injection systems such as high pressure rotary distributors, in-line pumps and unit injectors and injectors. Such severe failures are due to wear that

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